

## **Estimated Inputs of Nitrogen to Hood Canal, Washington**

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Keywords: hypoxia, Hood Canal, nutrients

Poor deep circulation and decomposition of settling algae caused by inputs of nitrogen compounds are suspected of causing low dissolved-oxygen concentrations in the bottom waters of the southern part of Hood Canal. Nitrogen inputs from direct atmospheric deposition, net advection of marine water into the canal, river discharges, ground-water inputs and nitrogen from near-shore septic systems were estimated by the USGS. Surface-water and ground-water inflow to the canal was estimated using a mass-balance approach with streamflow estimated for ungaged basins based on flow-drainage relations. Nitrate concentration data for surface and ground water were limited, so median concentrations for the region were applied in many cases. Preliminary estimates indicate that the marine input dominates inputs of nitrogen if the seaward boundary of Hood Canal is defined as the sill at the Hood Canal Bridge. The large net flow of marine water over the sill is consistent with acceptable dissolved-oxygen concentrations in the northern part of Hood Canal. Studies investigating the sources of nitrate in surface water and the extent of flushing in the reaches in the area of the Great Bend were initiated in autumn 2004.